

# A.5 Python Syntax Diagrams

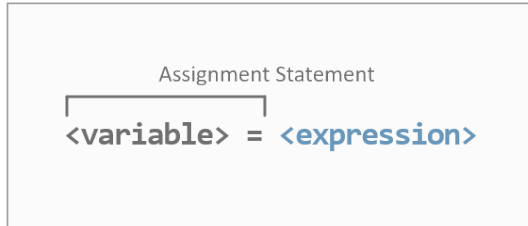
## *Literals*

<b>3</b> int literal	<b>3.5</b> float literal	<b>True/False</b> bool literal
<b>'hello'</b> str literal	<b>[1, 2, 3]</b> list literal	<b>(1, 2, 3)</b> tuple literal
<b>{1, 2, 3}</b> set literal	<b>{'a': 1, 'b': 2, 'c': 3}</b> dict literal	

## *Comprehensions*

Comprehension:		One or More Comprehension Variables	Filtering Condition (Optional)
Set	[	{<expr> for <variable> in <collection> ... if <condition>}	
List	[	[<expr> for <variable> in <collection> ... if <condition>]	
Dictionary	[	{<key_expr> : <val_expr> for <variable> in <collection> ... if <condition>}	

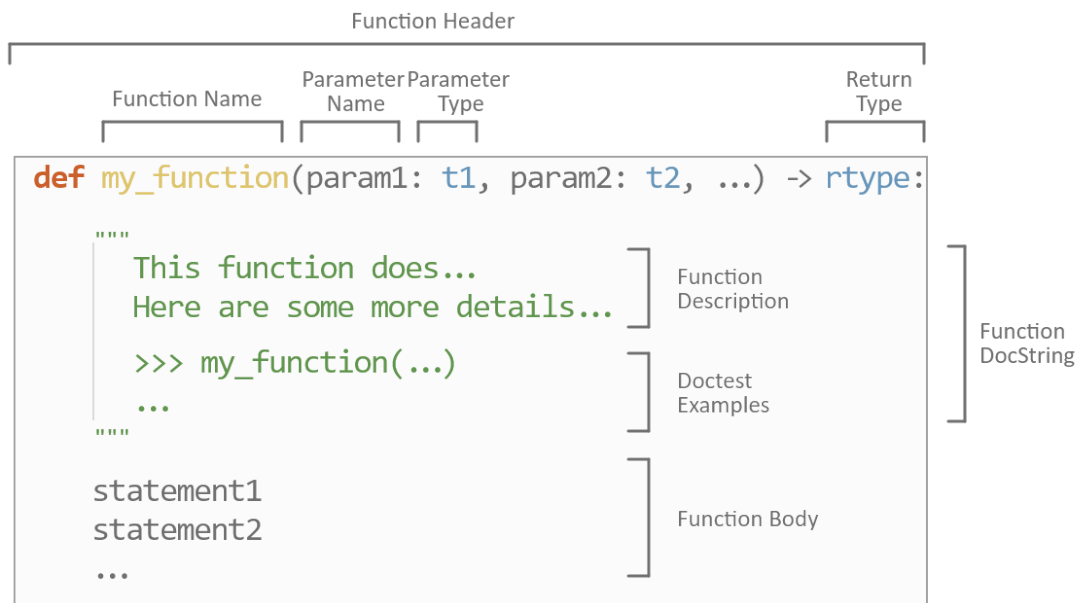
## Assignment statements



An **assignment statement** is executed in 2 steps:

1. First, the expression on the right-hand side is evaluated, producing a value.
2. Second, that value is bound to the variable on the left-hand side.

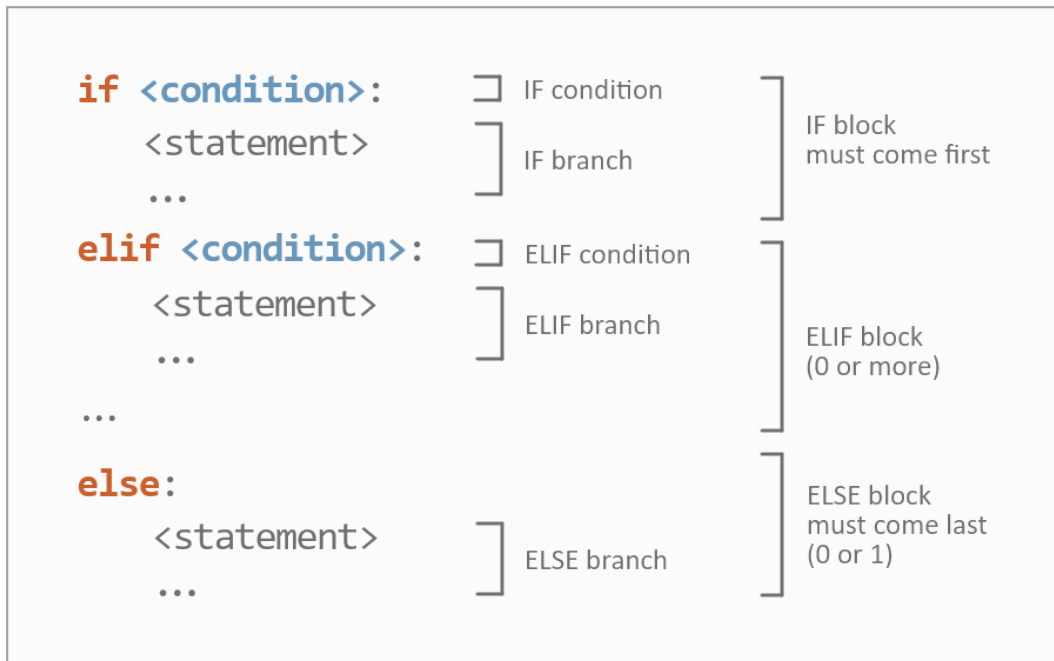
## Function definitions



## Data class definitions

<code>@dataclass</code>	]	Data Class Decorator
<code>class &lt;class_name&gt;:</code>	]	Class Definition
<pre>         """The description of the class...          Instance Attributes:             - ...          Representation Invariants:             - ...          Example Usage:         &gt;&gt;&gt; ...         """ </pre>	]	Class Docstring
<pre>         component1: type_annotation         component2: type_annotation         ... </pre>	]	Instance Attributes

*If statements*



## *For loop statements*



## *While loop statements*

**while** <condition>:

<body>

] Statements that execute  
on each iteration

## *Import statements*

**import** <module>

] Usage: <module>.<name1>

**from** <module> **import** <name1>, <name2>, ...

] Usage: <name1>

## *Raise statements*

**raise** <exception class>

This can be the name of an exception class (eg., `ValueError`) or an instance of an exception class (eg., `ValueError('value cannot be 0')`)

## *Try-except statements*

**try:**

<statement>

...

**except** <exception class>:

<statement>

...

try block must come first,  
it includes code that can  
potentially raise an exception

except block (1 or more)  
is executed if an exception  
is raised in the try block